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(54) **METHODS AND APPARATUS FOR  
INTERCONNECTING SAS DEVICES USING  
EITHER ELECTRICAL OR OPTICAL  
TRANSCIEVERS**

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**710/17; 710/18; 710/19; 710/20; 710/32**

(58) **Field of Classification Search** ..... **710/5, 7,**  
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See application file for complete search history.

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(57) **ABSTRACT**

Methods and systems for encoding and/or decoding digital signals representing serial attached SCSI (SAS) out of band (OOB) signals exchanged over an optical communication between two SAS devices. A SAS OOB signal to be transmitted from a first SAS device to a second SAS device is first encoded as a digitally encoded signal representing the analog SAS OOB signal and then transmitted over an optical communication medium to another SAS device. A receiving SAS device coupled to an optical communication medium decodes a received digitally encoded signal to detect a received, encoded SAS OOB signal and processes the received SAS OOB signal when receipt is detected. The digitally encoded signal may comprise an idle word portion and a burst word portion to represent various SAS OOB signals. Further, the digitally encoded signal may be precomputed in a variety of disparity forms and stored in a memory for lookup and retrieval.

**21 Claims, 5 Drawing Sheets**

